

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT****ENGINEERING AND COMPLIANCE****APPLICATION PROCESSING AND CALCULATIONS**

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APPL. NO.

502726, -27 & -28

DATE:

11/20/2009

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EVALUATION REPORT FOR PERMIT TO CONSTRUCT/OPERATE**Applicant's Name:** LIFOAM INDUSTRIES, LLC

Facility ID: 144455

Mailing Address: 2340 E 52ND STREET
VERNON, CA 90058**Equipment Location:** SAME**EQUIPMENT DESCRIPTION**

Modifications are shown in bold italic, original in bold strike-through.

Appl. No. 502726 – Modification of Polystyrene Foam Expansion & Molding (P/O G1316)

Modification of existing Polystyrene Foam Expansion and Molding (Process 1), by:

the **Removal** of:

- 3 storage silos (D11, D12 and D15)
- 2 shape molding Presses (D54 and D64)
- 2 dump hoppers (D53 and D63)

and the **addition** of:

- one polystyrene bead pre-expansion system (System 3, D133 through D137)
- 18 storage silos (D138 through D155)
- one pneumatic conveyor (D156)
- one dump hopper (D157)
- one molding press (D158)

Equipment	ID No.	Connected to	RECLAIM Source Type/ Monitoring Unit	Emission and Requirements	Conditions
Process 1: POLYSTYRENE EXPANDING AND MOLDING					P13.1
System 1: POLYSTYRENE BEAD PRE-EXPANSION SYSTEM NO. 1					
LOADING ARM, VACUUM LOADING, VACUUM LOADER NO. 1, POLYSTYRENE BEADS A/N: 477177 502726	D2	C125			
HOPPER, RECEIVING, POLYSTYRENE BEADS A/N: 477177 502726	D97	C125			
HOPPER, WEIGH, POLYSTYRENE BEADS A/N: 477177 502726	D98	C125			
FOAM EXPANSION, EPS BEAD EXPANDER NO.1, SME A/N: 477177 502726	D3	109 C125		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	B163.1, D29.4, E17.1, K40.1, K67.1



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HOPPER, COLLECTING, POLYSTYRENE BEADS/RECYCLED SCRAP A/N: 477177 502726	D99	C125			
System 2: POLYSTYRENE BEAD PRE-EXPANSION NO. 2					
LOADING ARM, VACUUM LOADING, VACUUM LOADER NO. 2, POLYSTYRENE BEADS A/N: 477177 502726	D5	C125			
HOPPER, RECEIVING, POLYSTYRENE BEADS A/N: 477177 502726	D100	C125			
HOPPER, WEIGH, POLYSTYRENE BEADS A/N: 477177 502726	D101	C125			
FOAM EXPANSION, EPS BEAD EXPANDER NO.2, SME A/N: 477177 502726	D6	C109 C125		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	B163.1, D29.4, E17.2, K40.1, K67.1
HOPPER, COLLECTING, POLYSTYRENE BEADS/RECYCLED SCRAP A/N: 477177 502726	D102	C125			
System 3: POLYSTYRENE BEAD PRE-EXPANSION NO. 3 (NEW)					
HOPPER, RECEIVING, POLYSTYRENE BEADS A/N: 502726	D133 (NEW)				
CONVEYOR, SCREW TYPE, POLYSTYRENE BEADS A/N: 502726	D134 (NEW)				
HOPPER, CHARGING, POLYSTYRENE BEADS A/N: 502726	D135 (NEW)				
HOPPER, WEIGH, POLYSTYRENE BEADS A/N: 502726	D136 (NEW)				
FOAM EXPANSION, EPS BEAD EXPANDER NO.3, HIRSCH 6000 XXL A/N: 502726	D137 (NEW)	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	B163.1, D29.4, E17.1, E17.2, K67.1
System 4: PRE-EXPANDED POLYSTYRENE BEADS AGING/STABILIZATION SYSTEM					
STORAGE SILO, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177	D11	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177	D12	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2



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STORAGE SILO, NO. 1, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177 502726	D13	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 2, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177 502726	D14	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177	D15	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 3, PRE-EXPANDED POLYSTYRENE BEADS, WOOD SILO, WIDTH: 10 FT; HEIGHT: 16 FT; LENGTH: 10 FT A/N: 477177 502726	D16	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 4, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D17	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 5, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D18	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 6, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D19	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 7, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D20	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 8, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D21	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 9, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 6 7 FT; HEIGHT: 10 8 FT; LENGTH: 4 7 FT A/N: 477177 502726	D22	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 10, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 8 FT; HEIGHT: 9 10 FT; LENGTH: 16 9 FT A/N: 477177 502726	D23	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2



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STORAGE SILO, NO. 11, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 8 FT; HEIGHT: 9 10 FT; LENGTH: 16 9 FT A/N: 477177 502726	D24	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 12, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 8 FT; HEIGHT: 9 10 FT; LENGTH: 16 9 FT A/N: 477177 502726	D25	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 13, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177 502726	D26	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 14, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 10 FT; HEIGHT: 10 FT; LENGTH: 10 FT A/N: 477177 502726	D27	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 15, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D28	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 16, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D29	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 17, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D30	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 18, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D31	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 19, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D32	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 20, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D33	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2



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STORAGE SILO, NO. 21, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D34	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 22, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D35	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 23, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D36	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 24, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D37	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 25, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D38	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 26, STABILIZED -PRE-EXPANDED POLYSTYRENE BEADS RECEIVER , SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 477177 502726	D39	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 27, PRE- EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D138 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 29, PRE- EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D139 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 30, PRE- EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D140 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 31, PRE- EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D141 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2



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STORAGE SILO, NO. 32, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D142 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 33, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D143 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 34, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D144 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 35, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D145 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 36, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D146 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 37, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D147 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 38, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D148 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 39, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D149 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 40, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D150 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 41, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D151 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 42, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D152 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2



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STORAGE SILO, NO. 43, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D153 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 44, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D154 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
STORAGE SILO, NO. 28, PRE-EXPANDED POLYSTYRENE BEADS, SOLID BAG, WIDTH: 7 FT; HEIGHT: 8 FT; LENGTH: 7 FT A/N: 502726	D155 (NEW)	C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, D323.1, E193.2
System 5: PNEUMATIC CONVEYING SYSTEM					
CONVEYOR, PNEUMATIC, PRE-EXPANDED POLYSTYRENE BEADS A/N: 477177 502726	D7				
CONVEYOR, PNEUMATIC, PRE-EXPANDED POLYSTYRENE BEADS A/N: 477177 502726	D8				
CONVEYOR, PNEUMATIC, STABILIZED POLYSTYRENE BEADS A/N: 477177 502726	D9				
CONVEYOR, PNEUMATIC, STABILIZED POLYSTYRENE BEADS A/N: 477177 502726	D10				
CONVEYOR, PNEUMATIC, 7.5 HP, PRE-EXPANDED POLYSTYRENE BEADS A/N: 502726	D156 (NEW)				
System 8: SHAPE MOLDING NO. -4- 7					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177 502726	D47			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, MFI 103 A/N: 477177 502726	D48	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 10: SHAPE MOLDING NO. -7- 6					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177 502726	D51			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, MFI 107 A/N: 477177 502726	D52	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4



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System 11: SHAPE MOLDING NO. 9					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177	D53			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, EPM 609 A/N: 477177	D54	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 13: SHAPE MOLDING NO. 3					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177 502726	D57			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, SME A/N: 477177 502726	D58	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 15: SHAPE MOLDING NO. 2					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177 502726	D61			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, P20 A/N: 477177 502726	D62	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 16: SHAPE MOLDING NO. -8-4					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, FABRIC BAG A/N: 477177	D63			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, NON-VACUUM MOLDING, LOEFELER AA A/N: 477177	D64	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, TWO TOTAL, METAL A/N: 502726	D157 (NEW)			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HS1400 BVI-W1437 A/N: 502726	D158 (NEW)	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 19: SHAPE MOLDING NO. -5-8					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D69			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, KURT 810 WITH TWO 7.5 VACUUM PUMPS A/N: 477177 502726	D70	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4



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System 20: SHAPE MOLDING NO. 1					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D71			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, KURT 1012 WITH TWO 7.5 VACUUM PUMPS A/N: 477177 502726	D72	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 25: SHAPE MOLDING NO. 14 15					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D86			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1200 WITH ONE 5.5 H.P. VACUUM PUMP A/N: 477177 502726	D87	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 26: SHAPE MOLDING NO. 17 16					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D88			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1200 WITH ONE 5.5 H.P. VACUUM PUMP A/N: 477177 502726	D89	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 27: SHAPE MOLDING NO. 15 14					
HOPPER, DUMP, TWO, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D90			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE 1500 WITH ONE 5.5 H.P. VACUUM PUMP A/N: 477177 502726	D91	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 28: SHAPE MOLDING NO. 18 17					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D92			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1200 WITH ONE 5.5 H.P. VACUUM PUMP A/N: 477177 502726	D93	C109		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 30: SHAPE MOLDING NO. 19 18					
HOPPER, DUMP, STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D95			PM: (9) [RULE 405, 2-7-1986];	D323.1



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PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1200 WITH ONE 5.5 H.P. VACUUM PUMP A/N: 477177 502726	D96	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 31: SHAPE MOLDING NO. 40-9					
HOPPER, DUMP, STABILIZED PRE- EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D111			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE800 A/N: 477177 502726	D112	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 32: SHAPE MOLDING NO. 41-10					
HOPPER, DUMP, STABILIZED PRE- EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D113			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE800 A/N: 477177	D114	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 33: SHAPE MOLDING NO. 42-5					
HOPPER, DUMP, STABILIZED PRE- EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D115			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1400 A/N: 477177 502726	D116	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 34: SHAPE MOLDING NO. 42-11					
HOPPER, DUMP, STABILIZED PRE- EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D117			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1400 A/N: 477177 502726	D118	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 35: SHAPE MOLDING NO. 44-13					
HOPPER, DUMP, STABILIZED PRE- EXPANDED POLYSTYRENE BEADS, METAL A/N: 477177 502726	D119			PM: (9) [RULE 405, 2-7-1986];	D323.1
PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1200 A/N: 477177 502726	D120	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 36: SHAPE MOLDING NO. 43-12					
HOPPER, DUMP, TWO , STABILIZED PRE-EXPANDED POLYSTYRENE BEADS, TWO TOTAL , METAL A/N: 477177 502726	D121			PM: (9) [RULE 405, 2-7-1986];	D323.1



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PRESS, VACUUM MOLDING, HIRSCH, MODEL NO. HE1400 A/N: 477177 502726	D122	C109		VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4
System 37: POLYSTYRENE SCRAP RECOVERY					
GRINDER, SCRAP A/N: 477177 502726	D123			PM: (9) [RULE 405, 2-7-1986]	D323.1
SCREEN, SCRAP A/N: 477177 502726	D124			PM: (9) [RULE 405, 2-7-1986]	D323.1
STORAGE SILO, SCRAP A/N: 477177 502726	D40	C125			

Appl. No. 502727 – Modification of Air Pollution Control (P/O G1315)

Modification of existing Air Pollution Control System (Process 1, System 1), by:

the removal of:

- Upstairs Booster Blower, 1 HP

and the addition of:

- Upstairs Booster Blower, 5 HP

Equipment	ID No.	Connected to	RECLAIM Source Type/ Monitoring Unit	Emission and Requirements	Conditions
Process 2: AIR POLLUTION CONTROL					
System 1: AIR POLLUTION CONTROL SYSTEM					
OXIDIZER, SHIP & SHORE ENVIRONMENTAL INC., NATURAL GAS, WITH A 50 HP MAIN BLOWER AND 5 HP COMBUSTION AIR BLOWER, WITH LOW NOX BURNER, 3 MMBTU/HR WITH A/N: 484247 502727 BURNER, NATURAL GAS, MAXON, LO-NOX BURNER, 3 MMBTU/HR <i>BLOWER, BOOSTER, 2 TOTAL, EACH 2 HP, VENTING PRE-EXPANDER NOS. 1 AND 2</i> <i>BLOWER, BOOSTER, 5 HP, VENTING STORAGE SILO NOS. 10 THROUGH 44</i> <i>BLOWER, BOOSTER, 1 HP, VENTING STORAGE SILO NOS. 1 THROUGH 9</i>	C109	D3 D6 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D48 D52 D54 D58 D62 D64 D70 D72 D87 D89 D91 D93 D96 D112 D114 D116 D118 D120 D122 C125 <i>D137 D138</i> <i>D139 D140</i> <i>D141 D142</i> <i>D143 D144</i> <i>D145 D146</i> <i>D147 D148</i> <i>D149 D150</i> <i>D151 D152</i> <i>D153 D154</i> <i>D155 D158</i>	NOX: PROCESS UNIT**	CO: 2000 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]; NOX: 130 LBS/MMCF NATURAL GAS (1) [RULE 2012, 5-6-2005]; PM10: 0.1 GRAINS/SCF NATURAL GAS (5A)[RULE 409, 8-7-1981]; VOC: (9) [RULE1175, 5-13-1994; RULE 1175, 9-7-2007]	D29.4, E73.1, E193.1, E193.3

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ENCLOSURE, POLYSTYRENE BEAD PRE-EXPANSION, -4-3 FLOOR SWEEPS, 250 CFM EACH A/N: 484247 502727	D125	D2 D3 D5 D6 D40 D97 D98 D99 D100 D101 D102 C109		PM: (9) [RULE 405, 2-7-1986]; VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	D12.3, D29.4, D323.1
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Appl. No. 502728 – Minor Title V Facility Permit Revision

Revision of Title V Facility Permit per Rule 301(l)(7).

PERMIT CONDITIONS

The following Permit Conditions are changed:

B163.1 THE OPERATOR SHALL NOT USE RAW MATERIALS CONTAINING THE FOLLOWING:

Raw polystyrene beads with a blowing agent content exceeding 6.1% by weight

To demonstrate compliance with this condition, records of the blowing agent content for all raw beads used in this equipment shall be kept in a format acceptable by the District and made available to the Executive Office or his representative upon request. The records shall consist of the manufacturer's Certificate Analysis identified in the lot tickets or the laboratory results from the testing performed in accordance with District Method 306-91.

If the laboratory test results are used as the method of compliance demonstration for any raw beads that have a lot ticket showing a blowing agent content exceeding 6.1% by weight, the operator shall perform the testing of blowing agent content for such beads in accordance with District Method 306-91 by an independent laboratory pursuant to Rule 304. The testing shall be performed at least once every quarter of each calendar year. Once the operator has tested a batch of raw beads with the same ticket number and demonstrated compliance with the blowing agent content requirement, any un-tested raw beads from the same supplier purchased in the same quarter are deemed to be in compliance if the blowing agent content in the lot ticket for the un-tested beads is lower than the blowing agent content in the lot ticket for the tested beads.

If a batch of raw beads with the same ticket number is tested and used in two consecutive quarters, only one test is required for such beads.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007, **RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D3, D6, **D137**]

D29.4 The operator shall conduct source test(s) for the pollutant(s) identified below:

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
VOC	Method(s) specified in District Rule 1175	District-approved averaging time	Protocol to indicate test locations for collection efficiency demonstration
VOC	Method(s) specified in District Rule 1175	District-approved averaging time	Inlet and outlet simultaneously of oxidizer

The test(s) shall be conducted to demonstrate compliance with Rule 1175(c)(2).

The test shall be conducted at least once every five years.

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Source test shall be conducted when the polystyrene foam expansion and molding process is operating at the maximum steady-state rate.

Source test shall be conducted when the pre-expanders have been shut down for at least 24 hours prior to the start of the test.

In addition to the source test requirements of Section E of this facility permit, the facility permit holder shall submit the protocol to the AQMD engineer no later than 45 days prior to the proposed test date, and notify the District of the date and time of the test at least 10 days prior to the test.

The test shall be conducted within 30 days after the receipt of the approval of the protocol.

The operator shall also provide to the District a source test report containing, at a minimum, the following information:

<u>Required data</u>	<u>Reported As</u>
Collection efficiency of emission collection system	Under actual test condition
Destruction efficiency of oxidizer	Under actual test condition
VOC emissions in ppmV and lbs/hr to support collection efficiency and destruction efficiency results	Under actual test condition
Operating temperature of oxidizer	Degrees Fahrenheit
Operating differential pressures of the two storage silo Booster Blowers	Inches of water columns
The maximum raw bead blowing agent content processed	Lbs blowing agent per 100 lbs raw material processed
The residual blowing agent content in product	Lbs blowing agent per 100 lbs raw material processed
Amount of Pre-puff beads stored in the aging silos prior to, during and after the source test	Under actual test condition

The source test shall be conducted when this equipment is operating at a temperature of not less than the minimum operating temperature specified in this permit. If the operating temperature during the source test is greater than the minimum operating temperature specified in this permit, the minimum operating temperature may be increased to reflect the operating temperature during the source test.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007; RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition: D3, D6, ~~D41~~, ~~D42~~, D13, D14, ~~D45~~, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D48, D52, ~~D54~~, D58, D62, ~~D64~~, D70, D72, D87, D89, D91, D93, D96, C109, D112, D114, D116, D118, D120, D122,

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C125, **D137, D138, D139, D140, D141, D142, D143, D144, D145, D146, D147, D148, D149, D150, D151, D152, D153, D154, D155, D158]**

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and
- 4). All visible emission observation records by operator or a certified smoke reader.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-2007]

[Devices subject to this condition: ~~D41, D42~~, D13, D14, ~~D45~~, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D47, D51, ~~D53~~, D57, D61, ~~D63~~, D69, D71, D86, D88, D90, D92, D95, D111, D113, D115, D117, D119, D121, D123, D124, C125, **D138, D139, D140, D141, D142, D143, D144, D145, D146, D147, D148, D149, D150, D151, D152, D153, D154, D155, D157]**

E17.1 *The operator shall not use more than 1 of the following items simultaneously:*

Device ID: D3 [Pre-Expander No. 1]

Device ID: D137 [Pre-Expander No. 3]

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007; RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

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[Devices subject to this condition: D3, D137]

E17.2 The operator shall not use more than 1 of the following items simultaneously:

Device ID: D6 [Pre-Expander No. 2]

Device ID: D137 [Pre-Expander No. 3]

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007; RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D6, D137]

E73.1 Notwithstanding the requirements of section E conditions, the operator is not required to use the RTO to control emissions from aging silos during the RTO maintenance period.

The RTO maintenance (consisting of filter replacement and filter chamber clean-up) period shall not exceed one hour per week and shall only be performed when the pre-expanders and molding equipment have been shut down for at least 72 hours.

The exhaust booster blowers venting ~~aging~~ **storage** silo **nos. 1 through 44** shall not be in operation during RTO maintenance period.

The operator shall maintain at least one set of replacement filters on site.

Materials collected from the filters and the filter chamber shall be discharged only into enclosed containers or returned to process and shall not be handled in a manner that may result in the re-release of collected materials to the atmosphere.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007; RULE 1303(a)-BACT, 5-10-1996]

[Devices subject to this condition: C109]

E193.2 THE OPERATOR SHALL OPERATE AND MAINTAIN THIS EQUIPMENT ACCORDING TO THE FOLLOWING REQUIREMENTS:

All pre-puff beads shall be aged for a minimum of 24 hours in this equipment before they are used in the shape molding process.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007, RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

*[Devices subject to this condition: ~~D41, D42~~, D13, D14, ~~D45~~, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, **D138, D139, D140, D141, D142, D143, D144, D145, D146, D147, D148, D149, D150, D151, D152, D153, D154, D155**]*

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~~K40.1 The operator shall provide to the District a source test report in accordance with the following specifications:~~

~~Source test results shall be submitted to the District no later than 30 days after the source test was conducted.~~

~~Emission data shall be expressed in terms of pounds of VOC per 100 pounds of raw material.~~

~~[Devices subject to this condition: D3, D6]~~

K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Certificate of Analysis showing blowing agent content for each lot of expandable polystyrene beads processed in this equipment.

Quarterly raw bead test results following District method 306-91 in cases where the lot tickets have blowing agent content greater than the permit content limit.

[RULE 1175, 5-13-1994; Rule 1175, 9-7-2007]

[Devices subject to this condition: D3, D6, **D137**]

BACKGROUND

Lifoam Industries, LLC (Lifoam) is located in Vernon, California. Lifoam is a manufacturer of expanded polystyrene (EPS) foam products, such as picnic coolers, food containers, packaging material, and various custom molded products. Lifoam currently operates one polystyrene foam expansion/molding system and two boilers. The polystyrene foam expansion/molding system consists of two pre-expanders, 29 aging silos, 19 shape molding presses, and associated conveyors and hoppers. The VOC emissions from the polystyrene foam expansion/molding system are controlled by a regenerative thermal oxidizer.

The facility is a RECLAIM and Title V facility.

On October 14, 2009, Lifoam submitted three applications indicated as follows:

<u>Appl. No.</u>	<u>Type</u>	<u>Previous Permit No.</u>	<u>Equipment</u>
502726	Modification	G1316	Polystyrene Foam Expansion/Molding
502727	Modification	G1315	Regenerative Thermal Oxidizer (C109)
502728	Plan	N/A	Title V / RECLAIM Permit Revision

Appl. No. 502726 is submitted as an expedited class-I modification application for the polystyrene foam expansion/molding process. The proposed modifications to the Polystyrene Foam Expansion/Molding process are indicated as follows:

- o Addition of one new pre-expander and one 7.5-HP pneumatic conveyor. The new pre-expander will not be operated simultaneously with two existing pre-expanders.
- o Removal of three silos downstairs and addition of 18 silos upstairs.



- Replacement of two presses with a single new press.

Lifoam is operating under a throughput limit of 270 tons/month (Condition No. F1.1) and a requirement of all pre-puff beads should be aged for a minimum period of 24 hours (Condition No. E193.2). However, with the existing storage capacity, the facility found it is difficult to manage the storage silos logistically if the maximum production needs to be reached. To ease for the compliance with the Condition No. E193.2 when the maximum production is required, Lifoam proposed to replace three large storage silos (5,000 lb total capacity) with 18 small storage silos (11,700 lb total capacity). Lifoam did not propose to change the existing throughput limit.

Appl. No. 502727 is submitted as an expedited class-I modification application for the RTO. The proposed modifications to the RTO are indicated as follows:

- Replacement of the upstairs 1-HP booster blower with a 5-HP booster blower, and modification of the associated exhaust duct works to increase air collection from the 18 additional silos.
- Addition of an exhaust collection system for the new pre-expander, and an automatic 3-way damper to assure the exhaust collection system is on during operation of the new pre-expander or the two existing pre-expanders #1 and #2.

Appl. No. 502728 is submitted as a plan for the minor revision of the Title V/Reclaim permit as specified in Rule 301.

PROCESS DESCRIPTION

Lifoam manufactures products utilizing expandable polystyrene (EPS) shape-molding operations. Lifoam purchases raw EPS beads impregnated with pentane as a blowing agent from a bead supplier. The pentane content of the raw bead is typically within a range of 4 to 5 percent by weight (%-wt.); however, on rare occasions, the process can utilize raw beads having a pentane content up to 6.1 %-wt. The raw EPS beads are supplied in sealed "super sacks".

EPS Pre-expanding Process

Pre-Modification

The manufacturing process begins at two batch pre-expanders (D3 and D6) where a super sack of raw beads is placed next to each of the expanders. Each pre-expander can process on an average of 820 pounds of raw materials per hour. A dedicated pneumatic loading system loads the raw beads from the super sack via a hose into a weigh scale on top of the pre-expander. From the weigh scale, raw beads are fed into an enclosed chamber where heated air and steam are introduced to the beads causing the beads to soften and expand while some of the pentane in the beads is released. The exhaust from the expansion chamber and the exhaust streams from mold presses are moisture laden. Therefore, they are combined and vented through several moisture knock-out boxes, and then join other dry exhaust streams and flow to the Regenerative Thermal Oxidizer (RTO), devise ID: C109.



The expanded beads (called “pre-puff”) from the expansion chamber pass through a fluid bed dryer and deposit into a screened hopper with an agitator that helps reduce clumped beads. Both the dryer and hopper are integrated components of the pre-expander. In addition, scrap material can be added to the hopper to supplement the pre-puff beads as a reclamation process. The exhaust from the fluid bed dryer is vented by two 2-HP booster blowers, and then this exhaust stream and other exhaust streams together are vented by the main blower of the RTO. The exhaust air collection at the fluid bed dryer is not fully enclosed. Therefore, the fugitive pentane emissions are further controlled by enclosing the two Pre-Expanders (D3 and D6) in a vented room (C125). The exhaust from the enclosure room is vented by the main blower of the RTO.

Post-Modification

Appl. No. 502726 proposes an installation of batch pre-expander #3 (D137). For this pre-expander, a super sack will be placed on a loading frame that transfers raw beads by gravity into a receiving hopper. The raw beads are then carried through a screw conveyor into a charge hopper that discharges raw beads into an enclosed weigh station. Once the required batch amounts of beads are collected, the raw beads are fed into the chamber of the pre-expander. Pre-expander #3 can process between 1,320 to 1,760 pounds of standard EPS materials per hour depending on the desired pre-puff bead density ranging between 0.8 and 2.0 pounds per cubic foot. Pre-expander #3 will be vented at the expansion chamber. Similar to the two existing pre-expanders, the exhaust will be moisture laden; thus, it will be combined with exhaust streams from the mold presses and transferred through several moisture knock-out boxes before it is controlled by the RTO. Since pre-expander #3 does not have a fluid bed dryer, it is not required to be placed inside of the enclosure room C125.

EPS Pre-puff Aging Process

Pre-Modification

From the pre-expanders, the pre-puff is directed through a network of pneumatic conveyors into aging silos. The existing facility has a total of 29 permitted aging silos (D11 through D39) ranging in capacity from 300 to 1,600 cubic feet. The aging process period typically ranges from 24 to 120 hours depending on pre-puff density and target product specifications. The aging silos are located indoors, and each has a snorkel connection at the bottom of the silo. The snorkel connection is consisted of an air filter on the top of an inner pipe that vents air to the RTO, and an outer pipe that connects to the pneumatic conveying system. Each storage silo is vented through the snorkel connection at a rate approximately 84 scfm. During the aging period, the pre-puffs are pulled toward center and bottom portion of the silo by the force generated from venting air through the air filter and the inner pipe. When a mold press calls for production, the pre-puffs will drop through between the inner air vent pipe and the outer pipe to the pneumatic conveying system.

Post-Modification

Appl. No. 502726 proposes addition of 18 storage silos (D138 through D155) upstairs, and removal of three storage silos (D11, D12 and D15) downstairs. This change requires a replacement of the upstairs 1-hp blower with a 5-hp blower for the increased airflow from the additional 18 storage silos.

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EPS Shape Molding Process**Pre-Modification**

From the aging silos, the aged pre-puff beads are conveyed pneumatically to individual shape molding presses. Lifoam currently operates a total of 19 permitted shape molding presses (D48, D52, D54, D58, D62, D64, D70, D72, D87, D89, D91, D93, D96, D112, D114, D116, D118, D120 and D122). Within a press, pre-puff beads fill the mold cavity, after which the press injects steam inside the mold. Under pressure, the steam causes the beads to heat up, expand, and bond to one another, thus forming products conforming to the shape of the mold. All presses have steam vents that are connected to moisture knock-out boxes vented by the RTO. The products are removed from the presses and are either moved to storage warehousing on-site or off-site. Some products are temporarily staged in an on-site area for a typical period of a few hours to no more than 8 hours. Occasionally, some products retain too much moisture after molding. These products are placed in a drying room maintained between 130-140°F for several hours.

Post-Modification

Appl. No. 502726 proposes addition of one new Hirsch 1400 shape molding press (D158), and removal of two existing presses (D54 and D64). This modification is believed to be beneficial to the VOC collection because the new presses provide better seals and are more efficient.

EPS Reclaim Process

In a reclamation process, Lifoam recycles most of its non-usable or defective molded pieces by placing those pieces into a grinder that reduces the large pieces into pieces that are close to an individual pre-puff bead size. The ground pieces are stored in a small silo that is not connected to the air pollution control equipment. From the reclamation silo, beads are dropped into the pre-expander's screened hopper, as previously described.

This facility operates 24 hrs/day, 7 days/wk, and 52 wks/yr.

Rule 1175 Compliance

Lifoam had two source tests performed on their EPS foam plant on April 16 and July 2, 2008. The test results were consolidated as one report dated on September 30, 2008, and the report was approved by the District M&STE on October 31, 2008 (ref. 08075). These tests have demonstrated the plant is currently operating in compliance with Rule 1175.

EMISSION CALCULATIONS

Lifoam will continue to meet with the current throughput limit under condition F1.1 (270 tons/month). In addition, Lifoam chooses to comply with 1175(c)(2); thus, the emission factor of 2.4 lb VOC emission per 100 lb raw material will continue to be used for the NSR calculations. Therefore, if the proposed modification is not affecting the facility compliance status with Rule 1175(c)(2), the modification project is considered no emission increase.

**Appl. No. 502726 - Polystyrene Foam Expansion/Molding**Source Test Data:

Lifoam submitted source test data that was obtained during a source test performed in April 2008. The test results contain relevant information indicated as follows:

Method 306 Results

<u>FHR 6655 Bead</u>	<u>Pentane Contents (w/w %)</u>	<u>lb Pentane/100 lb Polystyrene</u>
Raw Bead:	5.82%	6.18
Pre-puff 0-hr:	4.68%	4.91
Pre-puff 24-hr:	2.18%	2.23
Pre-puff 48-hr:	1.61%	1.64
Product:	1.48%	1.50

Other Data:

Maximum pre-puff storage capacity (pre-modification) = 28,000 lbs and 16,400 ft³

Maximum pre-puff storage capacity (post-modification) = 34,700 lbs and 22,160 ft³

Storage exhaust collection flow (pre-modification) = 1,800 cfm

Storage exhaust collection flow (post-modification) = 2,700 cfm

RTO Collection Efficiency = 94.7% (Source test on April 16, 2008)

RTO Destruction Efficiency = 97.2% (Source test on July 2, 2008)

EPS Pre-expanding Process

Since pre-expander #3 is better designed for its exhaust collection, and it will not run simultaneously with the two existing pre-expanders, I will assume the RTO collection efficiency to be the same (94.7%) after the modification.

C5 collected and destructed = (6.18 lbs – 4.91 lbs) (94.7%) (97.2%) = 1.17 lbs

EPS Pre-puff Aging Process

Pre-modification: (16,400 ft³) / (1,800 ft³/min) = 9.11 minutes per volume exchange

Post-modification: (22,160 ft³) / (2,700 ft³/min) = 8.21 minutes per volume exchange

Since more air will be collected from each storage silo, the collection efficiency will improve. Therefore, it is conservative to assume the RTO collection efficiency to be the same (94.7%) after the modification.

C5 collected and destructed = (4.91 lbs – 1.64 lbs) (94.7%) (97.2%) = 3.01 lbs

EPS Shape Molding Process

The addition of one new Hirsch 1400 shape molding press and the removal of two existing presses (D54 and D64) are believed to be beneficial to the VOC collection because the new presses provide better seals

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and are more efficient. I will assume the RTO collection efficiency to be the same (94.7%) after the modification.

$$C5 \text{ collected and destructed} = (1.64 \text{ lbs} - 1.50 \text{ lbs}) (94.7\%) (97.2\%) = 0.13 \text{ lbs}$$

Rule 1175 Compliance Determination

$$\frac{6.18 \text{ lbs} - 1.17 \text{ lbs} - 3.01 \text{ lbs} - 0.13 \text{ lbs}}{6.18 \text{ lbs} + 100 \text{ lbs}} \times 100 \text{ lbs} = 1.76 \text{ lbs} / 100 \text{ lbs Raw Materials (Compliance!)}$$

Condition E73.1

The proposed modification will increase the total storage silo capacity from 28,000 lbs to 34,700 lbs. Condition E73.1 allows RTO (C109) maintenance, which requires a temporary bypass of the air stream from the aging silos to the RTO during RTO maintenance periods. Therefore, the VOC emissions during the maintenance period need to be re-evaluated for Rule 1175(c)(2).

$$\text{Pentane off-gassed from aging beads} = 0.8764\% - 0.8572\% = 0.0192\% *$$

* See engineering evaluation for A/N: 484247

$$\text{Total pentane off-gassed} = \text{Max Storage Capacity (34,700 lbs)} \times 0.0192\% = 6.66 \text{ lbs/RTO-maintenance}$$

Assume air remains stagnant within the silos, and Ideal Gas and Standard temperature and pressure:

Total amount air contains pentane displaced from aging silos:

$$(0.7302413 \text{ ft}^3 \cdot \text{atm} / ^\circ\text{R} \cdot \text{lbmol}) (536.67^\circ\text{R}) (6.66 \text{ lb}) / (72.15 \text{ lb/lbmol}) / (1 \text{ atm}) = 36.18 \text{ ft}^3$$

Assume pre-puff beads are perfect spheres and approximately 47% silo capacity is air voids:

$$\begin{aligned} \text{Pentane emissions per maintenance period} &= (36.18 \text{ ft}^3) (6.66 \text{ lbs/RTO-maintenance}) / (47\% \times 22,160 \text{ ft}^3) \\ &= 0.0231 \text{ lb/RTO-maintenance} \end{aligned}$$

$$0.0231 \text{ lb} / 34,700 \text{ lbs beads} = 0.000067 \text{ lbs} / 100 \text{ lbs raw beads}$$

$$\text{New VOC emission limit} = 2.4 - 0.000067 \approx 2.4 \text{ lbs VOC} / 100 \text{ lbs raw materials (no change!)}$$

VOC emissions:

Operation: 24 hrs/day, 7 days/wk, and 52 wks/yr

Production (Max.): 270 tons/month (Condition No. F1.1), or 9 tons/day, or 750 lb/hr

Raw Material Blowing Agent Content (Max.): 6.1 % by weight (Condition No. B163.1)

Rule 1175(c)(2) limits 2.4 lb VOC emissions / 100 lb raw material processed.

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Therefore, the calculated controlled and uncontrolled VOC PTE's are indicated as follows:

$$R1 = (750 \text{ lb/hr}) (6.1\%) = 45.75 \text{ lb/hr or } 1,098 \text{ lb/day}$$

$$R2 = (750 \text{ lb/hr}) (2.4 \text{ lb VOC} / 100 \text{ lb Raw Materials}) = 18 \text{ lb/hr or } 432 \text{ lb/day}$$

Appl. No. 502727 - RTO (C109)**DATA:**

RTO capacity = 10,000 cfm

n-Pentane LEL: 1.5% (15,000 ppm)

Maximum 25% LEL inlet VOC concentration for an RTO system without LEL control.

$$\begin{aligned} \text{RTO inlet capacity} &= (10,000 \text{ cfm}) (60 \text{ min/hr}) (15,000 \text{ ppm}) (25\%) (1.84\text{E-}07 \text{ lbs/ft}^3 \cdot \text{ppm}) \\ &= 414 \text{ lbs n-Pentane} / \text{hr} \end{aligned}$$

Source Test Data:

Lifoam submitted source test data that was obtained during a source test performed on July 2, 2008. The test results were summarized in Table 2-1 (Report dated September 30, 2008), which contains relevant information indicated as follows:

<u>Inlet</u>	<u>Run Number</u>						<u>Average</u>
	1	2	3	4	5	6	
Flow Rate,							
dscfm	7,755	7,741	7,479	7,814	7,619	2,461	6,811
acfm	9,437	9,437	9,317	9,559	9,394	2,756	8,311
VOC Emissions,							
ppm, as carbon	2,043	2,155	2,103	2,867	3,351	4,871	2,989
lb/hr, as carbon	30.03	31.62	29.81	42.47	48.39	22.72	34.17
ppm, as pentane	409	431	421	573	670	974	580
lb/hr, as pentane	36.03	37.95	35.77	50.97	58.07	27.27	41.01

In addition, Lifoam reported the throughput information as follows:

<u>Pre-Expansion Monitoring</u>	<u>Run Number</u>						<u>Average</u>
	1	2	3	4	5	6	
PE #1 + PE #2 (lb/hr)	471.5	1,323	396.5	989	1203.5	0	730.6

Run #4 has the highest C5 collection per pound throughput is $(50.97) / (989) = 0.0515 \text{ lb/lb throughput}$.

The new pre-expander #3 can process between 1,320 to 1,760 pounds of standard EPS materials per hour depending on the desired pre-puff bead density ranging between 0.8 and 2.0 pounds per cubic foot. Therefore, the maximum pentane collection rate is calculated as follows:

$$(0.0515 \text{ lb/lb}) (1,760 \text{ lb/hr}) = 90.64 \text{ lb/hr} < 414 \text{ lbs n-Pentane} / \text{hr}$$

Acceptable!

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Combustion Emission Calculation:**Emission Factors**

$$\text{Emission}_{\text{ROG,SOX,PM10}} (\text{lb/MMBtu}) = EF_{\text{ROG,SOX,PM10}} \left(\frac{\text{lb}}{\text{MMscf}} \right) \times \frac{1 \text{ MMscf}}{1050 \text{ MMBtu}}$$

Emission Factor Summary - Natural Gas

Pollutant	Emission Factor (AQMD Default) lb/mm scf	Emission Factor (for this report) lb/MMBtu
VOC	7	0.00667
SO _x	0.6	0.000571
PM ₁₀	7.5	0.00714
NO _x	Not Applicable - Will be monitored under the RECLAIM Program	
CO	35	0.03333

AQMD Default emission factors for a natural gas fired boiler were taken from “General Instruction Book for the AQMD 2005-2006 Annual Emission Reporting Program”, Appendix A- Table 1):

Burner rating: 3 MMBTU/hr

Operating Schedule: 24 hrs/day; 7 days/week; 52 weeks/yr

The calculated emission results are indicated below:

Appl. No. 502727 - RTO (C109) Combustion Emission Summary

		Hourly (lbs/hr)	Daily (lbs/day)	Annually (lbs/yr)	30 day ave. (lbs/day)	30 day NSR (lbs/day)
R1=R2	VOC	0.020	0.48	174.8	0.48	0
R1=R2	SO _x	0.002	0.04	15.0	0.04	0
R1=R2	PM ₁₀	0.021	0.51	187.1	0.51	1
R1=R2	CO	0.100	2.40	873.5	2.40	2

RULES AND REGULATIONS EVALUATION

Rule 212: **Standards for Approving Permits** – The facility is not located within 1,000 feet of a K-12 school, and there is no emission increase with this modification. A Public Notice is not required.

Rule 401: **Visible Emissions** – Compliance is expected from well maintained and properly operated equipment.

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Rule 402: **Public Nuisance** – With proper operation and maintenance, the equipment is not likely to create a public nuisance.

Rule 1147: **NOx Reductions from Miscellaneous Sources**

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The existing RTO is a “Process Unit” under RECLAIM program and it is exempted from this rule under (g)(1)(B).

Rule 1175: **Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products**

Lifoam had two source tests performed on their EPS foam plant on April 16 and July 2, 2008. The test results indicated the plant is operating in compliance with Rule 1175. The proposed modification will not reduce the collection and destruction efficiencies of the air pollution control system. Therefore, compliance with this rule is expected.

REG XIII: **New Source Review** - There are no emission increase associated with the proposed modification. No emission offset is required for these applications.

Rule 1401: There is no toxic air contaminant associated with these applications. Risk assessment is not required.

RULE 2005: **New Source Review for RECLAIM**

There is no emission increase associated with the proposed permit modification. No emission offset is required.

Reg XXX: **Title V Permit**

Lifoam (Facility ID: 144455) has an active Title V permit. Based on the above evaluation, no emission increase is expected for this modification project. Therefore, application nos. 502726 and 502727 are considered Minor Permit Revisions of Title V Facility Permit and it is subject to a 45-day EPA review prior to final revision of the Title V Facility Permit (Application No. 502728).

CONCLUSION AND RECOMMENDATIONS

Based on this evaluation, it is expected that the subject equipment will be operated in compliance with all applicable District Rules and Regulations. The Permit to Construct/Operate is recommended to be issued.